

WHAT IS CLAIMED IS:

1. An apparatus for synchronization acquisition in a User Equipment (UE) communicating with any one of a first Node B in a first system mode operating in a synchronous scheme and a second Node B in a second system mode operating in an asynchronous scheme in a mobile communication system, comprising:
 - a controller for determining a system mode of a current Node B to which the UE belongs and generating a system mode select signal in order to select the determined system mode; and
 - a code generator for generating a synchronization code used in the first system mode or the second system mode in response to the system mode select signal.
2. The apparatus of claim 1, wherein the controller determines a system mode of a previous Node B to which the UE belongs prior to the UE powering-off as the system mode of a current Node B.
3. The apparatus of claim 1, wherein the controller determines a system mode of a Node B, which was set by a service provider of the mobile communication system, as the system mode of a current Node B.
4. The apparatus of claim 1, wherein the controller determines a system mode having a first priority among system modes previously stored in the UE as the system mode of a current Node B.
5. The apparatus of claim 1, wherein the code generator comprises:
 - a register unit having a second number of registers necessary for generating a synchronization code used in the second system mode, the register unit operating so that a feedback value is input to a first number of shift registers

necessary for generating a synchronization code used in the first system mode or to a second number of shift registers necessary for generating a synchronization code used in the second system mode, according to a predetermined control generated by the system mode select signal;

5 a synchronization code mask unit for masking a mask value for generating the synchronization code used in the first system mode or the synchronization code used in the second system mode, to a shift register value according to a predetermined control; and

a feedback controller for determining a register feedback tap of the
10 register unit for generating the synchronization code used in the first system mode or the synchronization code used in the second system mode according to a predetermined control generated by the system mode select signal, and inputting a feedback value to a shift register corresponding to a system mode.

15

6. A method for synchronization acquisition in a user equipment (UE) communicating with any one of a first Node B in a first system mode operating in a synchronous scheme and a second Node B in a second system mode operating in an asynchronous scheme in a mobile communication system,
20 comprising the steps of:

determining a system mode of a current Node B to which the UE belongs; and

generating a synchronization code used in the first system mode or the second system mode according to the determined system mode.

25

7. The method of claim 6, wherein the determining step determines a system mode of a Node B to which the UE belongs prior to the UE powering-off as the system mode of a current Node B.

30

8. The method of claim 6, wherein the determining step determines

a system mode of a Node B, which was set by a service provider of the mobile communication system, as the system mode of a current Node B.

9. The method of claim 6, wherein the determining step determines
5 a system mode having a first priority among system modes previously stored in the UE as the system mode of a current Node B.

10. The method of claim 6, wherein the synchronization code
generating step comprises the steps of:
10 receiving a mask value and a shift register value for generating a
synchronization code used in the first system mode or a synchronization code
used in the second system mode according to the system mode select signal;
determining a register feedback tap for generating the synchronization
code used in the first system mode or the synchronization code used in the
15 second system mode according to the determined system mode, and inputting a
feedback value to a shift register corresponding to a system mode;
shifting register values so that a feedback value is input to a first number
of shift registers necessary for generating the synchronization code used in the
first system mode or to a second number of shift registers necessary for
20 generating the synchronization code used in the second system mode according
to the determined system mode; and
generating a synchronization code by masking a mask value for
generating the synchronization code used in the first system mode or the
synchronization code used in the second system mode, to the shift register value
25 according to the determined system mode.